Functional Significance of the High Zinc Content of *Crassostrea virginica*

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Levels of zinc in oyster tissues generally exceed those in sea water several thousandfold. The concentration of zinc by oysters is of radioecological significance because zinc-65 sometimes occurs in fallout and in reactor effluents. To characterize the physiological role of zinc in oysters, we have studied the interaction between zinc and oyster proteins *in vitro*. Upon gel filtration of the extracellular fluid of oysters, about 97 percent of the total zinc is eluted with the high molecular weight proteins. Prolonged dialysis at pH 8, however, removed up to 95 percent of the zinc in buffered extracts of whole oysters; continued dialysis against repeated changes of buffer did not remove the remaining zinc. Although zinc is required for enzymatic activity of alkaline phosphatase in oysters, the alkaline phosphatase in oysters, the alkaline phosphatase in the extracts was only slightly inhibited by this treatment. These data suggest that most of the zinc associated with soluble oyster proteins is not required metabolically.

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